WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:

data combining means for combining predetermined data with original image data on a pixel position with a lower limit gray scale value in a direction of gray scale value decrease, and generating combined image data; and

encoding means for encoding the combined image data generated by the data combining means.

2. An image processing apparatus comprising:

decoding means for decoding encoded combined image data generated by encoding combined image data which is generated by combining predetermined data with original image data on a pixel position with a lower limit gray scale value in a direction of gray scale value decrease, and generating decoded combined image data; and

data separating means for separating the predetermined data combined with the original image data on the pixel position with the lower limit gray scale value in the direction of gray scale value decrease from the decoded combined image data generated by the decoding means.

3. An image processing apparatus comprising:

data combining means for combining predetermined data with original image data on a pixel position with an upper limit gray scale value in a direction of gray scale value increase,

and generating combined image data; and

encoding means for encoding the combined image data generated by the data combining means.

4. An image processing apparatus comprising:

decoding means for decoding encoded combined image data generated by encoding combined image data which is generated by combining predetermined data with original image data on a pixel position with an upper limit gray scale value in a direction of gray scale value increase, and generating decoded combined image data; and

data separating means for separating the predetermined data combined with the original image data on the pixel position with the upper limit gray scale value in the direction of gray scale value increase from the decoded combined image data generated by the decoding means.

5. An image processing apparatus comprising:

data combining means for combining a part of predetermined data with original image data on a pixel position with a lower limit gray scale value in a direction of gray scale value decrease and combining a remaining part of the predetermined data with original image data on a pixel position with an upper limit gray scale value in a direction of gray scale value increase, and generating combined image data; and

encoding means for encoding the combined image data

generated by the data combining means.

6. An image processing apparatus comprising:

decoding means for decoding encoded combined image data generated by encoding the combined image data which is generated by combining a part of predetermined data with original image data on a pixel position with a lower limit gray scale value in a direction of gray scale value decrease and combining a remaining part of predetermined data with original image data on a pixel position with an upper limit gray scale value in a direction of gray scale value increase, and generating decoded combined image data; and

data separating means for separating a part of the predetermined data combined with the original image data on the pixel position with the lower limit gray scale value in the direction of gray scale value decrease and a remaining part of the predetermined data combined with the original image data on the pixel position with the upper limit gray scale value in the direction of the gray scale increase from the decoded combined image data generated by the decoding means.

7. The image processing apparatus of claim 1, wherein the data combining means comprises a judging portion for judging whether or not a gray scale value on each pixel position of the original image data is of the lower limit.

8. The image processing apparatus of claim 2, wherein the data separating means comprises a judging portion for judging whether or not a gray scale value on each pixel position of the decoded combined image data is smaller than the lower limit.

9. The image processing apparatus of claim 3, wherein the data combining means comprises a judging portion for judging whether or not a gray scale value on each pixel position of the original image data is of the upper limit.

10. The image processing apparatus of claim 4, wherein the data separating means comprises a judging portion for judging whether or not a gray scale value on each pixel position of the decoded combined image data is greater than the upper limit.

11. The image processing apparatus of claim 5, wherein the data combining means comprises a judging portion for judging whether or not a gray scale value on each pixel position of the original image data is of the upper limit or the lower limit.

12. The image processing apparatus of claim 6, wherein the data separating means comprises a judging portion for judging whether or not a gray scale value on each pixel position of the decoded combined image data is greater than the upper limit and smaller than the lower limit.